

# Recent IBM Patents

• The following patents were recently issued by the countries in which the inventions were made.

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|-----------------------|----------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>France</b>         |                                                                                                                            |                                                                                        |
| 7,230,577             | Digital Narrow Band Filter .....                                                                                           | N. J. Nussbaumer                                                                       |
| 7,233,186             | Voice Response Unit .....                                                                                                  | D. J. Esteban                                                                          |
| <b>Switzerland</b>    |                                                                                                                            |                                                                                        |
| 547,590               | Communication Switching System .....                                                                                       | C. J. Jenny                                                                            |
| <b>United Kingdom</b> |                                                                                                                            |                                                                                        |
| 1,339,156             | Data Processing Systems .....                                                                                              | P. L. Gardner and R. J. Llewellyn                                                      |
| 1,334,654             | Arrangement for Handling Analogue Information .....                                                                        | C. P. Parker                                                                           |
| <b>United States</b>  |                                                                                                                            |                                                                                        |
| 3,790,767             | Pulse Analyzing Tester .....                                                                                               | A. D. Alexander                                                                        |
| 3,795,047             | Electrical Interconnect Structuring for Laminate Assemblies and Fabricating Methods Therefor .....                         | O. R. Abolafia, J. A. Lau,<br>F. F. M. Lee and C. R. Watson                            |
| 3,795,358             | Immersion Solder Leveling Apparatus Using Ultrasonic Cavitation .....                                                      | F. H. Sarnacki and R. V. Steenstrup                                                    |
| 3,795,434             | Grating Guides for Optical Surface Waves .....                                                                             | E. A. Ash                                                                              |
| 3,795,467             | Apparatus for Loading Conductive Powders into an Electrical Connector Socket .....                                         | W. J. Wheeler                                                                          |
| 3,795,541             | Ferromagnetic Material .....                                                                                               | K. Lee, E. Sawatzky and<br>J. C. Suits                                                 |
| 3,795,828             | Monolithic Decoder Circuit .....                                                                                           | J. R. Cavaliere and D. B. Mooney                                                       |
| 3,795,845             | Semiconductor Chip Having Connecting Pads Arranged in a Non-orthogonal Array .....                                         | E. E. Cass, R. M. Gustafson<br>and P. M. Young                                         |
| 3,795,859             | Method and Apparatus for Determining the Electrical Characteristics of a Memory Cell Having Field Effect Transistors ..... | J. F. Benante, N. M. Donofrio<br>and R. H. Linton                                      |
| 3,795,880             | Partial Product Array Multiplier .....                                                                                     | S. Singh and R. Waxman                                                                 |
| 3,795,901             | Data Processing Memory System with Bidirectional Data Bus .....                                                            | R. F. Boehm and D. W. Van Bogelen                                                      |
| 3,795,903             | Modified Phase Encoding .....                                                                                              | R. D. Lindsey                                                                          |
| 3,795,908             | Gas Panel with Multi-directional Shifting Arrangement .....                                                                | A. W. McDowell and F. M. Lay                                                           |
| 3,795,977             | Methods for Fabricating Bistable Resistors .....                                                                           | M. Berkenblit, J. N. Cole,<br>D. J. Herrell, T. B. Light,<br>K. C. Park and A. Reisman |
| 3,796,132             | Cocked Damping Mechanism .....                                                                                             | H. A. Panissidi                                                                        |
| 3,796,393             | Pneumatic-photoelectric Transducer in a Magnetic Tape Unit .....                                                           | R. G. Beistle                                                                          |
| 3,796,476             | Method of Making Totally Internally Reflected Holograms .....                                                              | A. Frosch, W. Jaerisch,<br>A. Schmackpfeffer and J. Ziller                             |
| 3,796,497             | Optical Alignment Method and Apparatus .....                                                                               | E. S. Mathisen, R. L. Moore and<br>L. S. Sheiner                                       |
| 3,796,548             | Boat Structure in an Apparatus for Making Semiconductor Compound Single Crystals .....                                     | D. W. Boss, E. M. Hull and<br>S. J. Scilla                                             |
| 3,796,610             | Glycerol Soldering Fluxes .....                                                                                            | F. H. Sarnacki and R. V. Steenstrup                                                    |
| 3,796,613             | Method of Forming Dielectric Isolation for High Density Pedestal Semiconductor Devices .....                               | I. E. Magdo and S. Magdo                                                               |
| 3,796,614             | Method for Controlling Intermetallic Semiconductor Diffusions .....                                                        | J. S. Basi and V. J. Lyons                                                             |
| 3,796,830             | Recirculating Block Cipher Cryptographic System .....                                                                      | J. L. Smith                                                                            |
| 3,796,835             | Switching System for TDM Data Which Induces an Asynchronous Submultiplex Channel .....                                     | F. H. Closs, H. R. Mueller,<br>E. Port, H. Rudin, Jr. and<br>D. Wild                   |
| 3,796,859             | Magnetic Ink Recording System to Both Magnetize and Read Ink .....                                                         | D. A. Thompson                                                                         |
| 3,796,882             | Silicon-cadmium Selenide Heterojunctions .....                                                                             | J. G. Cahill, B. S. Sharma and<br>Y. J. Van der Meulen                                 |
| 3,796,909             | Electroluminescent Storage Display .....                                                                                   | I. F. Chang and W. B. Pennebaker                                                       |
| 3,796,926             | Bistable Resistance Device Which Does Not Require Forming .....                                                            | J. N. Cole, J. J. Cuomo,<br>R. B. Laibowitz and K. C. Park                             |
| 3,796,928             | Semiconductor Shift Register .....                                                                                         | V. Y. Doo, I. T. Ho and T.-S. Jen                                                      |
| 3,796,933             | Single-phase Charge-coupled Semiconductor Device. ....                                                                     | P. C. Arnett, L. G. Heller and<br>C. H. Stapper, Jr.                                   |

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| 3,796,955 | Gate Oxide Early Fail Screening Test Utilizing a Low Pressure Plasma . . . .                                                                      | <i>A. Bhattacharyya and J. B. Dinklage</i>                                                             |
| 3,797,000 | Non-volatile Semiconductor Storage Device Utilizing Avalanche Injection<br>and Extraction of Stored Information . . . . .                         | <i>B. Agusta and J. J. Chang</i>                                                                       |
| 3,797,002 | Dynamically Double Ordered Shift Register Memory . . . . .                                                                                        | <i>D. T. Brown</i>                                                                                     |
| 3,797,035 | Recording Media Orientation . . . . .                                                                                                             | <i>R. E. Hunt and L. H. Robbins</i>                                                                    |
| 3,797,037 | Sentence Oriented Dictation System Featuring Random Accessing of Infor-<br>mation in a Preferred Sequence under Control of Stored Codes . . . . . | <i>R. A. Kolpek</i>                                                                                    |
| 3,798,007 | Method and Apparatus for Producing Large Diameter Monocrystals . . . . .                                                                          | <i>R. A. Bochman, R. G. Dessauer and<br/>D. P. Jen</i>                                                 |
| 3,798,081 | Method for Diffusing as into Silicon From a Solid Phase . . . . .                                                                                 | <i>K. D. Beyer</i>                                                                                     |
| 3,798,084 | Simultaneous Diffusion Processing . . . . .                                                                                                       | <i>V. J. Lyons</i>                                                                                     |
| 3,798,136 | Method for Completely Filling Small Diameter Through-holes with Large<br>Length to Diameter Ratio . . . . .                                       | <i>J. D. Olsen and L. T. Romankiw</i>                                                                  |
| 3,798,167 | Electrophotographic Developer Having Controlled Triboelectric Character-<br>istics . . . . .                                                      | <i>W. J. Kulka and H. E. Munzel</i>                                                                    |
| 3,798,359 | Block Cipher Cryptographic System . . . . .                                                                                                       | <i>H. Feistel</i>                                                                                      |
| 3,798,360 | Step Code Ciphering System . . . . .                                                                                                              | <i>H. Feistel</i>                                                                                      |
| 3,798,458 | Optical Scanner Including an Aperture Design for Non-synchronous Detec-<br>tion of Bar Codes . . . . .                                            | <i>R. L. Buckingham, J. B. Davis and<br/>H. H. Herd</i>                                                |
| 3,798,512 | FET Device with Guard Ring and Fabrication Method Therefor . . . . .                                                                              | <i>D. L. Critchlow and S. E. Schuster</i>                                                              |
| 3,798,605 | Centralized Verification System . . . . .                                                                                                         | <i>H. Feistel</i>                                                                                      |
| 3,798,606 | Bit Partitioned Monolithic Circuit Computer System . . . . .                                                                                      | <i>R. A. Henle, G. A. Maley and<br/>W. D. Pricer</i>                                                   |
| 3,798,610 | Multiplexed Intelligence Communications . . . . .                                                                                                 | <i>B. E. Bliss, J. T. Dervan III,<br/>L. E. Griffith, B. D. Pung,<br/>R. A. Thorpe and N. A. Vogel</i> |
| 3,798,613 | Controlling Peripheral Subsystems . . . . .                                                                                                       | <i>G. H. Edstrom, E. P. Lutter and<br/>F. L. Robinson</i>                                              |
| 3,798,621 | Monolithic Storage Arrangement with Latent Bit Pattern . . . . .                                                                                  | <i>U. Baitinger, K. Najmann and<br/>R. Remshardt</i>                                                   |
| 3,798,656 | Ink Return System for a Multijet Ink Jet Printer . . . . .                                                                                        | <i>P. Lowy, S. A. Manning and<br/>K. F. Stroms</i>                                                     |
| 3,799,314 | Platen Brake and Paper Blousing Eliminator . . . . .                                                                                              | <i>J. E. Smith</i>                                                                                     |
| 3,799,316 | Automatic Erase Mechanism . . . . .                                                                                                               | <i>R. V. Davidge, C. J. Davis,<br/>S. A. Okcuoglu and J. O. Schaefer</i>                               |
| 3,800,078 | Digitally Compensated Scanning System . . . . .                                                                                                   | <i>W. H. Cochran and G. M. Heiling</i>                                                                 |
| 3,800,079 | Compensation for a Scanning System . . . . .                                                                                                      | <i>W. D. McNeil and W. S. Rohland</i>                                                                  |
| 3,800,170 | Low Power Dissipation High Voltage Crystal Driver . . . . .                                                                                       | <i>N. D. Kline and R. J. Weinschenk</i>                                                                |
| 3,800,193 | Magnetic Sensing Device . . . . .                                                                                                                 | <i>K. G. Ashar and J. Overmeyer</i>                                                                    |
| 3,800,281 | Error Detection and Correction Systems . . . . .                                                                                                  | <i>E. W. Devore and J. W. Irwin</i>                                                                    |
| 3,800,291 | Data Processing System Memory Relocation Apparatus and Method . . . . .                                                                           | <i>J. Cocke and D. R. Helman</i>                                                                       |
| 3,800,293 | Microprogram Control Subsystem . . . . .                                                                                                          | <i>T. A. Enger, C. W. Evans, Jr.<br/>and L. H. Johnson</i>                                             |
| 3,800,294 | System for Improving the Reliability of Systems Using Dirty Memories . . . .                                                                      | <i>F. D. Lawlor</i>                                                                                    |
| 3,800,295 | Asynchronously Operated Memory System . . . . .                                                                                                   | <i>R. D. Anderson, Jr., G. B. Hasler,<br/>R. W. Kirby and K. R. White</i>                              |
| 3,801,142 | Fluid Coupling . . . . .                                                                                                                          | <i>A. L. Jones, G. T. Judson and<br/>R. M. Kellogg</i>                                                 |
| 3,801,327 | O-Dithialane-Photosensitive Compositions . . . . .                                                                                                | <i>W. M. Moreau</i>                                                                                    |
| 3,801,836 | Common Emitter Transistor Integrated Circuit Structure . . . . .                                                                                  | <i>P. P. Castrucci, E. G. Grochowski,<br/>W. D. North and T. L. Palfi</i>                              |
| 3,801,905 | Method of Testing for the Operability of Integrated Semiconductor Circuits<br>Having a Plurality of Separable Circuits . . . . .                  | <i>T. H. Baker, M. Ghafghaichi,<br/>R. C. Stevens and D. Tuman</i>                                     |
| 3,801,910 | Externally Accessing Mechanical Difficult to Access Circuit Nodes Using<br>Photo-responsive Conductors in Integrated Circuits . . . . .           | <i>H. F. Quinn</i>                                                                                     |
| 3,801,962 | Communication Mechanism for Data Transfer and Control between Data<br>Processing Systems and Subsystems . . . . .                                 | <i>B. B. Moore and C. A. Thorn</i>                                                                     |
| 3,801,965 | Write Suppression in Bipolar Transistor Memory Cells . . . . .                                                                                    | <i>G. Keller and U. Olderdissen</i>                                                                    |
| 3,801,967 | Monolithic Bipolar Transistor Storage Arrangement with Latent Bit Pattern .                                                                       | <i>H. H. Berger, K. Najmann,<br/>H. Pietrass and S. Wiedmann</i>                                       |
| 3,802,654 | Strain Relief Cable Anchor . . . . .                                                                                                              | <i>W. J. Jenko and L. C. Stanley</i>                                                                   |
| 3,802,889 | Photoresist Composition Useful for Making Chromium Film Masks . . . . .                                                                           | <i>E. R. Skarvinko</i>                                                                                 |
| 3,802,968 | Process for a Self-isolation Monolithic Device and Pedestal Transistor Struc-<br>ture . . . . .                                                   | <i>H. N. Ghosh and E. S. Wajda</i>                                                                     |
| 3,802,969 | Semiconductor Devices and Fabricating Techniques . . . . .                                                                                        | <i>J. C. Marinace</i>                                                                                  |
| 3,803,459 | Gain in a Josephson Junction . . . . .                                                                                                            | <i>J. Matisoo</i>                                                                                      |
| 3,803,483 | Semiconductor Structure for Testing of Metallization Networks on Insulative<br>Substrates Supporting Semiconductor Chips . . . . .                | <i>M. T. McMahon, Jr.</i>                                                                              |

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| 3,803,501 | Frequency Discriminator Using Digital Non-recursive Filters .....                                              | G. D. Jones, Jr.                                                               |
| 3,803,554 | Apparatus for Addressing an Electronic Data Storage .....                                                      | D. W. Bock, W. Haug and<br>U. Olderdisen                                       |
| 3,803,637 | Laser Printer .....                                                                                            | B. D. Martin and C. H. Ristad                                                  |
| 3,804,312 | Paper Tape Supply .....                                                                                        | R. E. Lagergren                                                                |
| 3,804,609 | Method of Gas Panel Construction .....                                                                         | T. J. Murphy and D. M. Wilson                                                  |
| 3,804,681 | Method for Making a Schottky-barrier Field Effect Transistor .....                                             | K. E. Drangeid, T. O. Mohr,<br>H. F. Statz and W. Von Muench                   |
| 3,804,738 | Partial Planarization of Electrically Insulative Films by Resputtering .....                                   | J. S. Lechaton, L. P. Richard and<br>D. C. Smith                               |
| 3,804,992 | Digital Time Sampling Phase Comparator with Noise Rejection .....                                              | B. C. Fiorino and J. A. Rodriguez                                              |
| 3,805,040 | Self-checked Single Bit Change Register .....                                                                  | R. C. Boden and F. L. Wade                                                     |
| 3,805,095 | FET Threshold Compensating Bias Circuit .....                                                                  | J. M. Lee and G. Sonoda                                                        |
| 3,805,139 | Programmed Waveform Power Inverter Control System .....                                                        | H. S. Hoffmann, Jr. and<br>K. H. Knickmeyer                                    |
| 3,805,152 | Recirculating Testing Methods and Apparatus .....                                                              | B. Ebersman, J. V. Meehan,<br>and W. T. Wilson                                 |
| 3,805,160 | Method for Non-contact Semiconductor Resistivity Measurement .....                                             | J. W. Philbrick, C. A. Pillus,<br>M. R. Poponiak and C. P. Schneider           |
| 3,805,175 | Retrospective Pulse Modulation Decoding Method and Apparatus .....                                             | E. G. Nassimbene                                                               |
| 3,805,180 | Binary-coded Signal Timing Recovery Circuit .....                                                              | A. X. Widmer                                                                   |
| 3,805,237 | Technique for the Conversion to Digital Form of Interspersed Symbolic and<br>Graphic Data .....                | R. O. Cobb and A. C. Moore                                                     |
| 3,805,245 | I/O Device Attachment for a Computer .....                                                                     | E. G. Brooks, N. N. Heise,<br>D. O. Lewis, G. D. Pooler and<br>D. O. Zimmerman |
| 3,805,272 | Recording System Utilizing Magnetic Deflection .....                                                           | G. J. Fan and R. A. Toupin                                                     |
| 3,805,736 | Apparatus for Diffusion Limited Mass Transport .....                                                           | R. A. Foehring, R. R. Garnache and<br>D. M. Kenney                             |
| 3,806,061 | Tape Transport .....                                                                                           | E. P. Kollar, J. M. Levine and<br>J. M. Tagawa                                 |
| 3,806,382 | Vapor-solid Impurity Diffusion Process .....                                                                   | W. A. Fitzgibbons, D. M. Kenney and<br>R. A. Michaud                           |
| 3,806,430 | Method for Fabricating Anodic Films .....                                                                      | R. B. Laibowitz, A. A. Levi and<br>R. Rosenberg                                |
| 3,806,738 | Field Effect Transistor Push-pull Driver .....                                                                 | W. B. Chin and T.-S. Jen                                                       |
| 3,806,744 | High Frequency Stepper Motor .....                                                                             | D. G. Abraham and S. H. Mills                                                  |
| 3,806,777 | Visual Optimization of Light Emitting Diodes .....                                                             | H. D. Edmonds                                                                  |
| 3,806,800 | Method and Apparatus for Determining the Location of Electrically Conduc-<br>tive Members on a Structure. .... | R. Bove and E. M. Hubacher                                                     |
| 3,806,801 | Probe Contactor Having Buckling Beam Probes .....                                                              | R. Bove                                                                        |
| 3,806,878 | Concurrent Subsystem Diagnostics and I/O Controller .....                                                      | G. H. Edstrom                                                                  |
| 3,806,885 | Polling Mechanism for Transferring Control from One Data Processing Sys-<br>tem or Subsystem to Another .....  | B. B. Moore                                                                    |
| 3,806,888 | Hierarchical Memory System .....                                                                               | N. F. Brickman and F. E. Sakalay                                               |
| 3,806,891 | Logic Circuit for Scan-In/Scan-Out .....                                                                       | E. B. Eichelberger, R. N. Gustafson<br>and C. Kurtz                            |
| 3,806,898 | Regeneration of Dynamic Monolithic Memories .....                                                              | H. O. Askin                                                                    |
| 3,807,015 | Method of Making a Compact Fluid Actuator .....                                                                | D. J. Steger                                                                   |
| 3,807,300 | Inspection Terminal .....                                                                                      | K. A. Brooks, D. O. Duncan,<br>G. H. Pennell and A. D. Wolfheimer              |
| 3,807,724 | Stacker for Continuous Form Sheets .....                                                                       | W. R. Bartz                                                                    |
| 3,807,971 | Deposition of Non-porous and Durable Tin-gold Surface Layers in Microinch<br>Thicknesses .....                 | J. G. Boles, M. M. Haddad,<br>D. W. Rich and M. C. Smith                       |
| 3,808,378 | Line Circuit for Telephone Installation .....                                                                  | P. H. Hernandez                                                                |
| 3,808,462 | Inverter Incorporating Complementary Field Effect Transistors .....                                            | J. T. Parrish, D. P. Spampinato<br>and L. M. Terman                            |
| 3,808,468 | Bootstrap FET Driven with On-chip Power Supply .....                                                           | P. J. Ludlow and E. Tai                                                        |
| 3,808,497 | Gaseous Discharge Device and Method of Spacing the Plates Thereof .....                                        | J. C. Greeson, Jr., P. H. Haberland<br>and M. J. Costa                         |
| 3,808,527 | Alignment Determining System .....                                                                             | D. R. Thomas                                                                   |